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Page 1 of 9

Date: February 2, 2006

To: Mail Stop AF Fax: 571-273-8300 Phone:
United States Patent and Trademark Office

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Subject: Application Serial No. 10/717,348

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Application No.: 10/717,348
Filing Date: November 18, 2003
First Named Inventor: J.S. Lewis et al.
Group Art Unit: 1725
Examiner Name: Johnson, Jonathan J.
Attorney Docket No.: P17609

Enclosures:

1. Notice of Appeal from the Examiner to the Board of Patent Appeals and Interferences (1 page in duplicate)
2. Pre-Appeal Brief Request for Panel Review (6 pages)

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Attorney's Docket No.: P17609

Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

J.S. Lewis et al.

U.S. Serial No: 10/717,348

Filed: November 18, 2003

For: **VIA HEAT SINK MATERIAL**

Examiner: Johnson, Jonathan J.

Art Unit: 1725

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR PANEL REVIEW

Dear Sir:

In accordance with the procedures outlined in the Official Gazette published July 12, 2005, Applicants respectfully request review of the following clear errors in the Final Action mailed November 3, 2005, in connection with the above-identified application. The error is the omission of an element required for a prima facie rejection in the rejections of claims 16-20. Section 4 of the Official Gazette procedures states that this is an instance in which a request for panel review is warranted. The omission of each element was previously pointed out by the Applicants in the paper filed on September 15, 2005.

Argument:

The Final Action erroneously states that Enroth et al. (U.S. 6,462,285) (hereinafter "Enroth") anticipates claim 16 under 35 U.S.C. 102(b). Because Enroth fails to disclose applying thermally conductive material to the side of a layer on which there is the connection pad and trace, as is recited in claim 16, the rejection is unsupported in the art and should be reversed.

-1-

Serial No.: 10/717,348

Attorney Docket P17609

A portion of claim 16 is presented below:

16. (original) A method, comprising:

applying thermally conductive material to a first side of a layer, the layer having a connection pad on the first side of the layer, a via extending from the first side to a second side of the layer, and a conductive trace between the via and the connection pad on the first side of the layer, the thermally conductive material being applied to be in contact with at least one of the via and the conductive trace;

As seen above, claim 16 recites a layer with a first side to which a thermally conductive material is applied. Claim 16 recites that there is a connection pad on this first side. Claim 16 additionally recites that there is a conductive trace between the connection pad and a via on that first side. Thus, the connection pad, trace, and application of thermally conductive material are all on the same first side of the layer, as is summarized in the table below:

	Claim 16:
connection pad	first side
trace	first side
application of thermally conductive material	applied to the first side

Enroth, in contrast, does not disclose applying thermally conductive material to the same side of a layer on which there is a connection pad and a conductive trace between the connection pad and a via. Rather, as admitted by the Examiner in the second paragraph of page 6 of the Final Action, Enroth discloses applying thermally conductive material to the side **opposite** that on which the connection pad and trace are located. The Examiner

characterized reference number 32 of Enroth as a connection pad, reference number 38 as the trace, and reference number 70 as the thermally conductive material (Final Action, page 3). Reference numbers 32 and 38 of Enroth are both on the same side (Enroth, col. 4, lines 23-28 and Figure 8). However, Enroth only discloses applying "thermally conductive material" 70 to the side opposite to "connection pad" 32 and "trace" 38 (Enroth, col. 5, lines 5-22, Figures 6-8). Thus, the placement of the connection pad, trace, and thermally conductive via as disclosed by Enroth is summarized in the table below:

	Enroth:
connection pad	first side
trace	first side
application of thermally conductive material	applied to the second side opposite the first side

Combining the two tables, it is apparent that Enroth fails to disclose the method recited in claim 16:

	Claim 16:	Enroth:
connection pad	first side	first side
trace	first side	first side
application of thermally conductive material	applied to the first side	applied to the second side opposite the first side

In summary, claim 16 recites applying thermally conductive material to the **same** side of a layer on which there is the connection pad and trace; Enroth discloses applying "thermally conductive material" 70 to the side of a layer **opposite** to that on which there is the connection pad and trace. As Enroth fails to disclose all limitations of claim 16, the rejection is in error and should be withdrawn.

Claims 17-19 depend from claim 16. The rejections of these claims are unsupported in the art for the reasons provided above.

-3-

Serial No.: 10/717,348

Attorney Docket: P17609

The Final Action erroneously states that claim 20 is unpatentable over Enroth in view of Akram et al. (U.S. 6,815,817) under 35 U.S.C. 103(a). Claim 20 depends from claim 16. As stated above, Enroth fails to disclose all limitations of claim 20. Akram fails to rectify this deficiency.

Further, Akram and Enroth, alone or in combination, fail to disclose or suggest that the thermally conductive material comprises a thermal epoxy. Enroth fails to disclose a thermal epoxy as a thermally conductive material; the plug 70 of Enroth comprises solder. The Examiner's assertion that Akram discloses a thermal epoxy at col. 4, lines 25-35 is incorrect; Akram merely discloses an epoxy that may have inert filler material and may have a coefficient of thermal expansion. This does not constitute a thermal epoxy.

Examiner's Response to Applicants' September 15, 2005 Arguments:

The Examiner's response to Applicants' arguments filed on September 15, 2005 does not overcome Enroth's failure to disclose all limitations recited in claim 16.

In the Final Action, after the Examiner's agreement that Enroth teaches applying the plug 70 to the **opposite** side to that on which the connection pad and trace are located, the Examiner discusses the broad interpretation of the "first side" and whether it is the top or bottom. However, it is immaterial whether the Examiner interprets the first side as the top or bottom. Either way, the claim recites that the thermally conductive material is applied to the same side as that on which the connection pad and trace are located. As the "thermally conductive material" 70 of Enroth is applied to the opposite side as that on which the "connection pad" 32 and "trace" 38 are located, Enroth fails to disclose each limitation of claim 16, whether the first side is the bottom or the top.

The Examiner's statement on pages 6 and 7 of the Final Action that Applicants rely upon "applying a thermally conductive material directly on the top of a structural layer" (emphasis present in original, at pages 6 and 7 of the Final Action) is a misstatement of Applicants' position. Applicants have not stated that claim 16 requires applying a thermally conductive material directly on the top of a structural layer. Rather, Applicants rely on the

plain language of claim 16, which clearly recites that the thermally conductive material is applied to the side of a layer on which there is the connection pad and trace. As shown above, Enroth fails to disclose such an application. The rejection is unsupported in the art and should be reversed.

Respectfully submitted,

Date: February 2, 2006



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(37 C.F.R. § 1.8(a))

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